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ABSTRACT

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Vacuum pneumatic conveying apparatus and method are described to provide for a simple, economical, convenient (and preferably automatic) system for conveying ice on an as-required basis from a source such as an ice maker to one or more receptors at locations remote from that source. The system can be configured such that dispensing locations can be added or eliminated from the system or temporarily taken "off line" from the system without the need to change the basic system configuration or the central ice providing apparatus. The apparatus in various embodiments includes an ice source, a conveying conduit from the source to the receptor, a vacuum pump for moving the ice through the conduit by vacuum, and the receptor to collect the conveyed ice. The receptor may be an ice/beverage dispenser, an accumulator for retention and discharge to further devices, an intermediate storage dispenser, or an air lock device from where the ice can be projected over significant distances. Ice and vacuum may simultaneously be routed into different branched routes, utilizing a unique diverter/air shifter with the capability of providing routing to up to four different routes. Appropriate sensors and controllers, which may be microprocessor-based, may be used to automate the system. The entire system is easily cleanable. The system is advantageously used by restaurants, groceries, hotels and motels, hospitals, laboratories, and many other establishments where the providing of ice at various locations is desirable or required.

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